



# Weeks 2-3 Global Tropics Hazards Outlook

8/20/2024

Thomas Collow

NWS / NCEP / Climate Prediction Center

# Outlook Review: TC development & anomalous precipitation during the past week

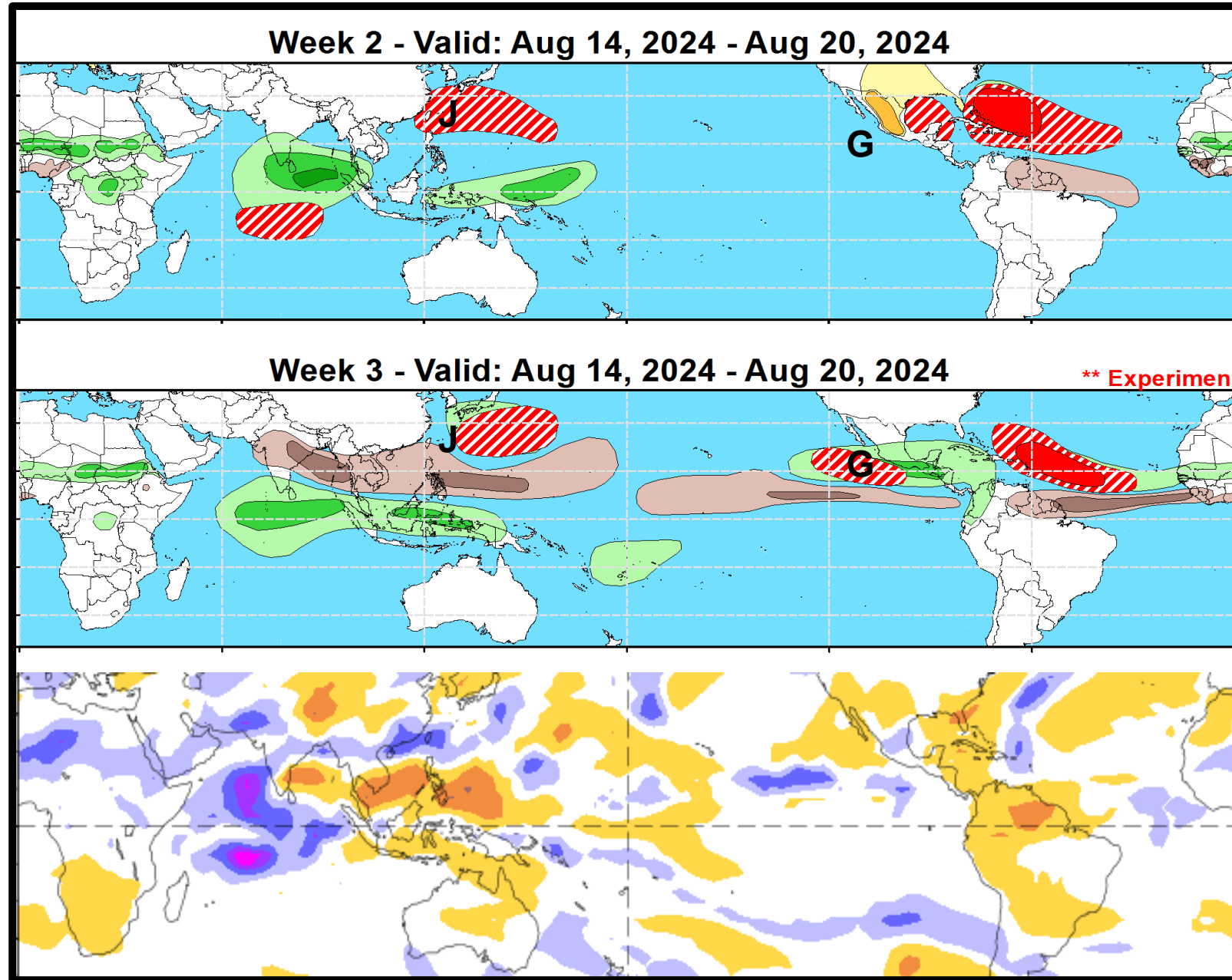
## Western Pacific

- Tropical Storm Jongdari (8/19)

## Eastern Pacific

- Tropical Storm Gilma (8/18)

Watching Invest 90S over the Southern Indian Ocean.



# Synopsis of Climate Modes:

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**ENSO:** (Aug 8, 2024 Update)      *next update on Thursday, Sep 12<sup>th</sup>*

- ENSO Alert System Status: [La Niña Watch](#)
- ENSO-neutral is expected to continue for the next several months, with La Niña favored to emerge during SON (66% chance) and persist into the Northern Hemisphere winter 2024-25 (74% chance during November-January).

## **MJO and other subseasonal tropical variability:**

- The MJO has increased in amplitude over the Indian Ocean (border of phases 2 and 3) during the past week, aided by constructive interference with enhanced Equatorial Rossby Wave activity.
- Dynamical models indicate the MJO continuing to propagate eastward across the Maritime Continent by the end of week-2 and possibly slowing down over the far Western Pacific by week-3.
- In the wake of the MJO over the Indian Ocean, enhanced African easterly wave activity combined with anomalously warm sea surface temperatures and near peak season climatology favor increased chances for tropical cyclone (TC) formation over the Atlantic Main Development Region beginning in late August.

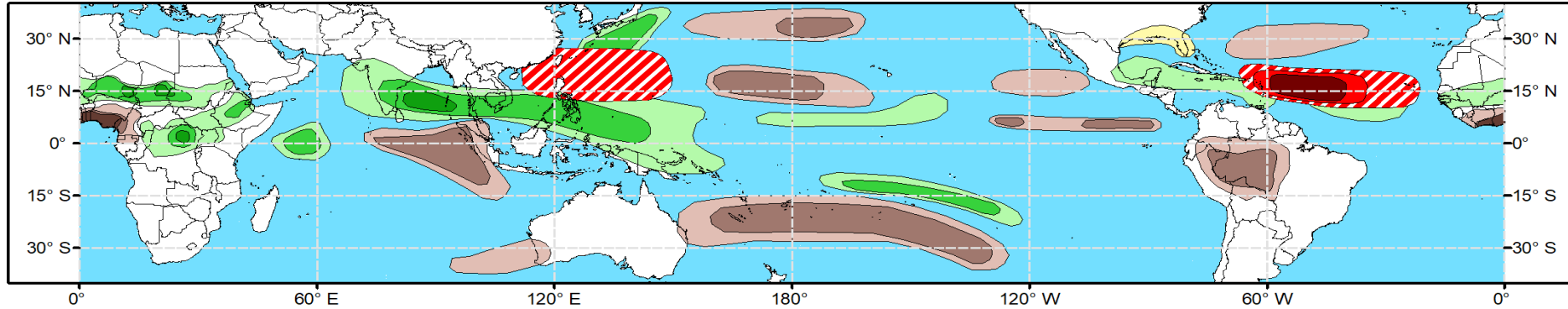
# GTH Outlook:



## Global Tropics Hazards Outlook Climate Prediction Center

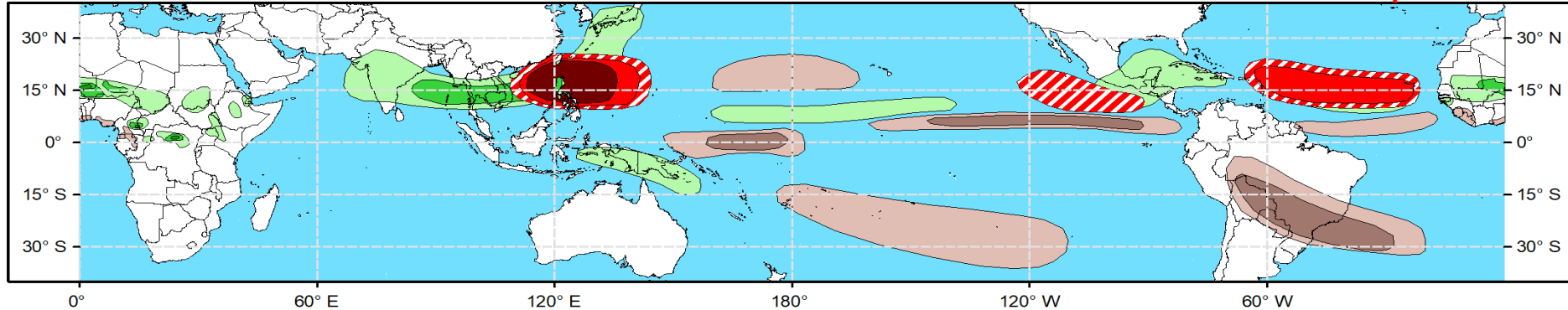


**Week 2 - Valid: Aug 28, 2024 - Sep 03, 2024**



**Week 3 - Valid: Sep 04, 2024 - Sep 10, 2024**

**\*\* Experimental \*\***



**Tropical Cyclone (TC)  
Formation Probability**



>20% >40% >60%

Tropical Depression (TD)  
or greater strength

**Above-Average  
Rainfall Probability**



>50% >65% >80%

Weekly total rainfall in the  
Upper third of the historical range

**Below-Average  
Rainfall Probability**



>50% >65% >80%

Weekly total rainfall in the  
Lower third of the historical range

**Above-Average  
Temperatures Probability**



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7-day max temperatures in the  
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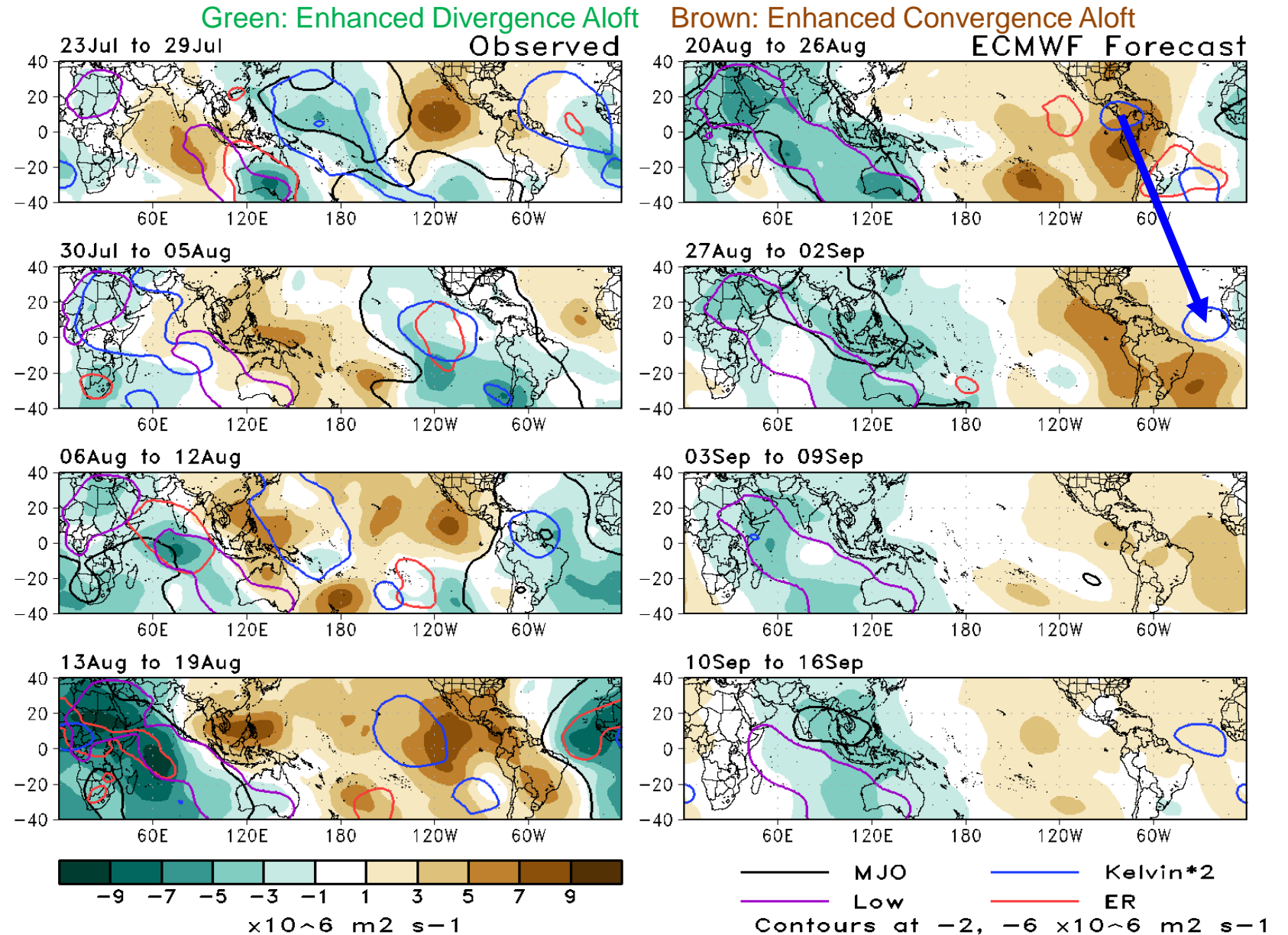
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**Issued: 08/20/2024  
Forecaster: Collow**

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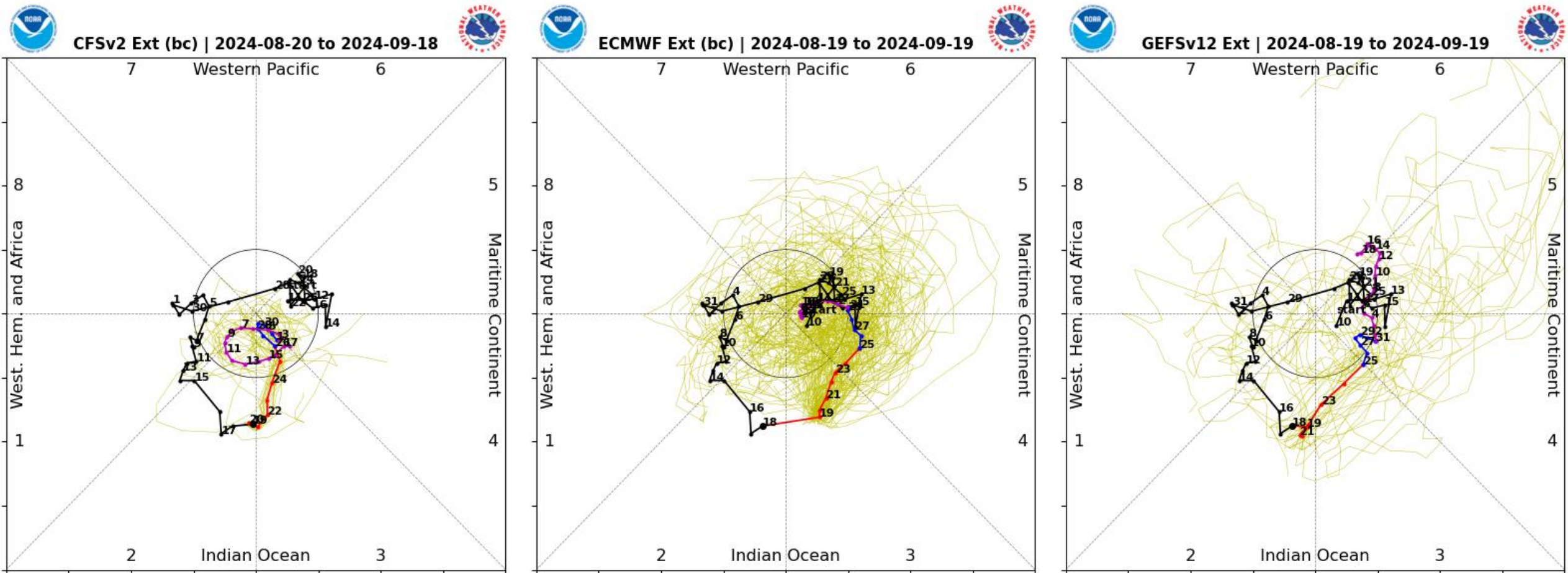
# 200-hPa Velocity Potential Anomaly Maps:

- A well defined wave-1 asymmetry pattern exists in the global upper-level velocity potential field.
- Convectively-coupled Kelvin Wave shifts from the Pacific to the Atlantic and destructively interferes with the suppressed convective environment aloft.
- Enhanced convection aloft persists over much of the Eastern Hemisphere into mid-September favoring elevated TC formation chances over the Western Pacific.



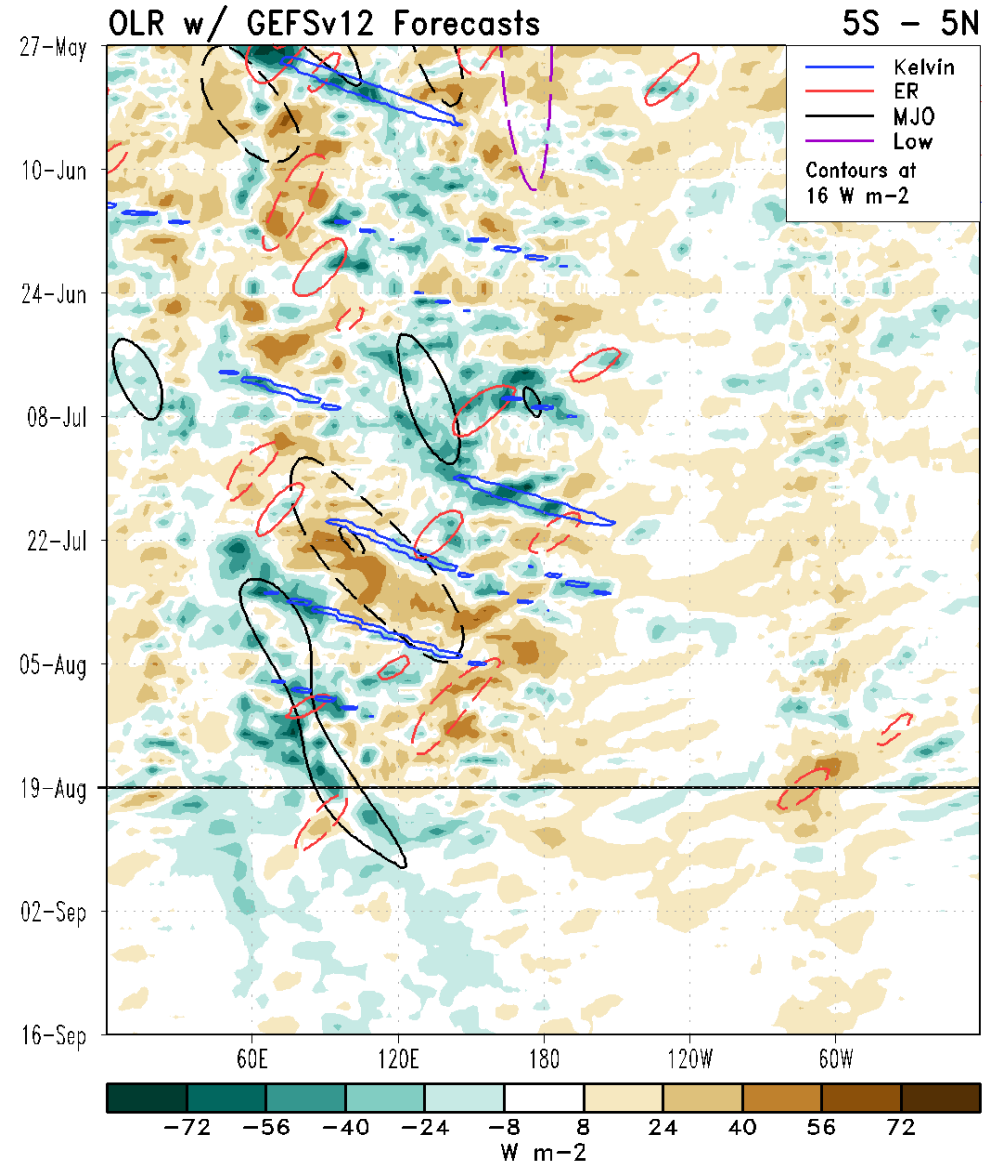
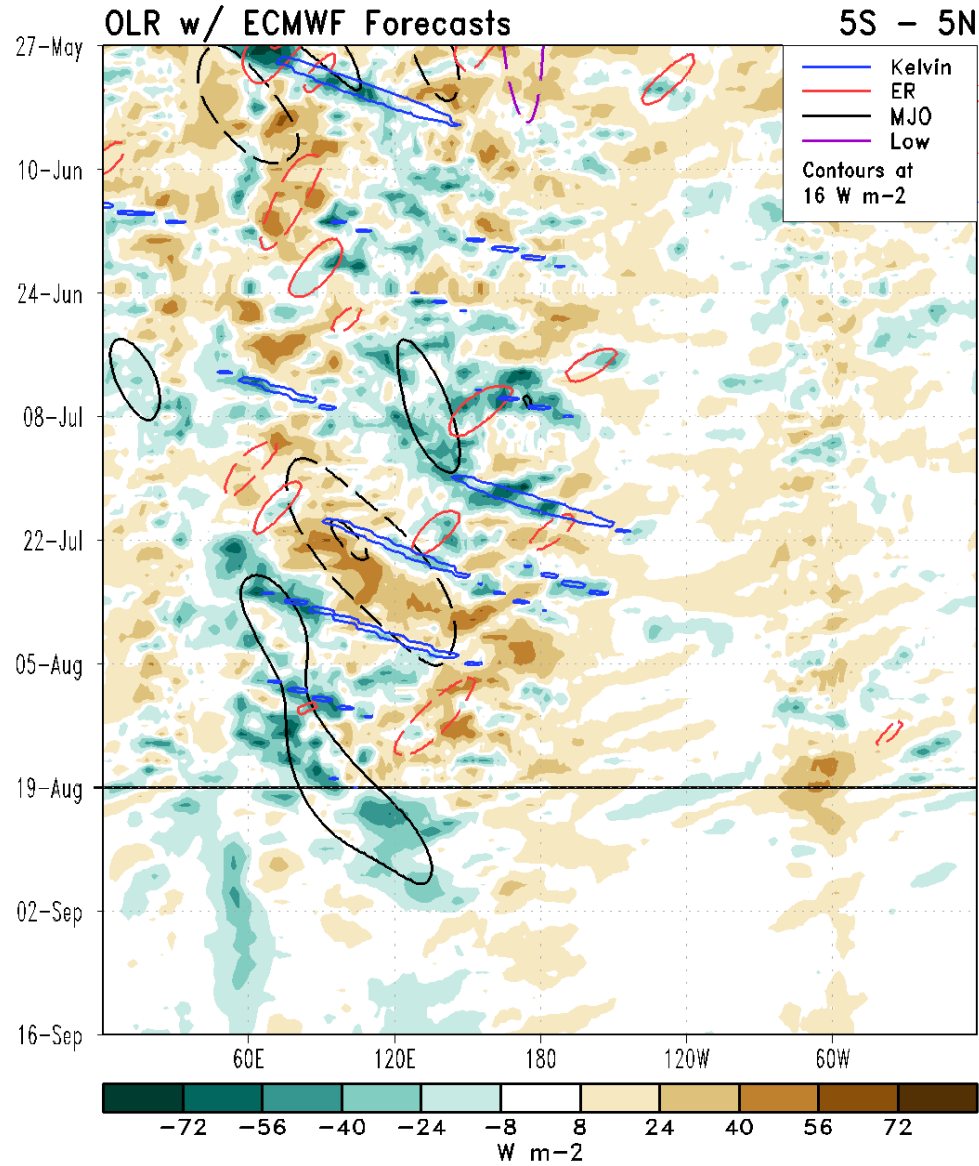


# RMM Index Observations & Forecasts:



- The GFS and ECMWF ensembles depict a clear propagation of the MJO into the Maritime Continent by the end of week-2, with the CFS showing a much weaker signal.
- There is more uncertainty beyond week-2 as many ensembles weaken or meander the MJO across the Maritime Continent or far Western Pacific.

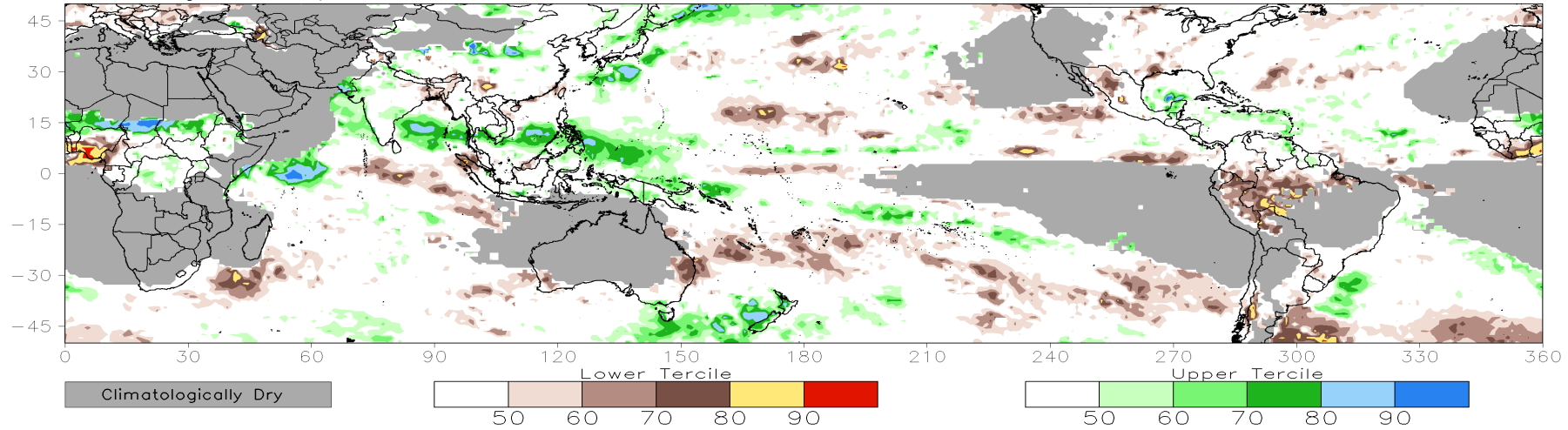
# Outgoing Longwave Radiation (OLR) Anomaly Time/Lon Plots:



# Consolidated Probabilistic Precipitation: Weeks 2 & 3

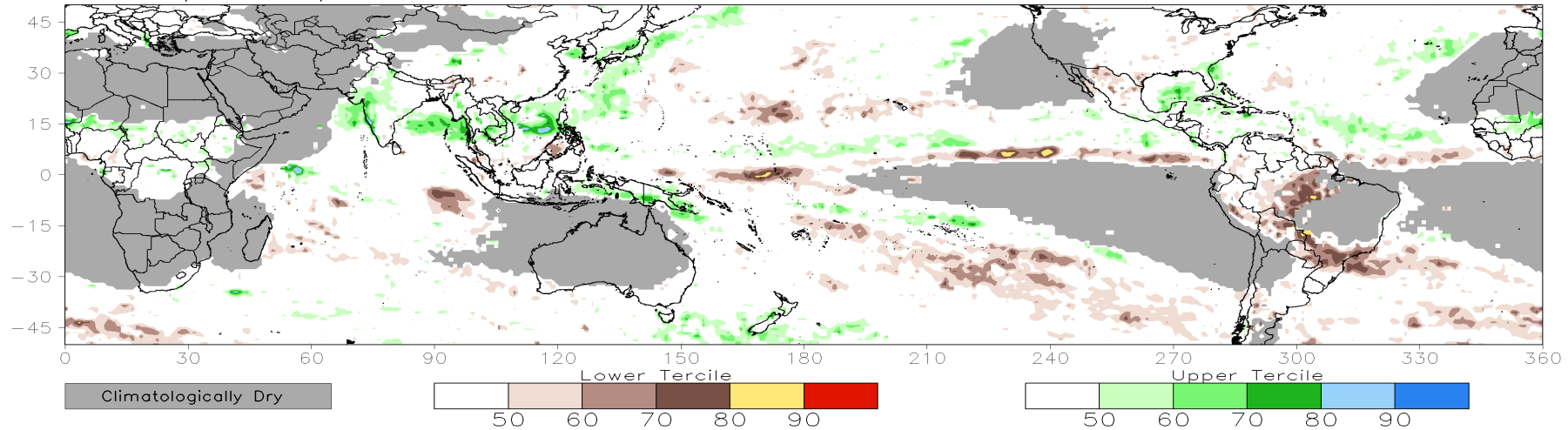
CONS 00z: Week2 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 28Aug2024–03Sep2024



CONS 00z: Week3 Probability for Total Rainfall Below(Above) Lower(Upper) Tercile (%)

Valid: 04Sep2024–10Sep2024

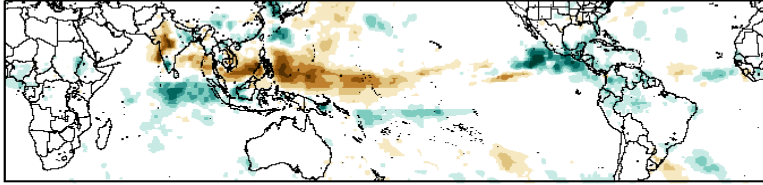




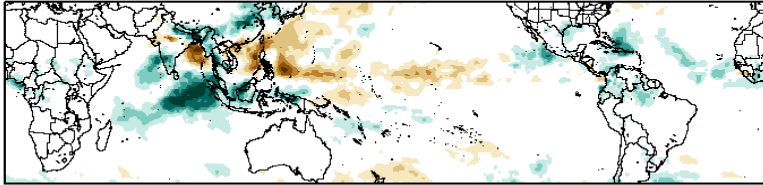
# Historical Precipitation Anomalies By MJO Phase:

JAS MJO Composite: GPCP1DD (mm/day)

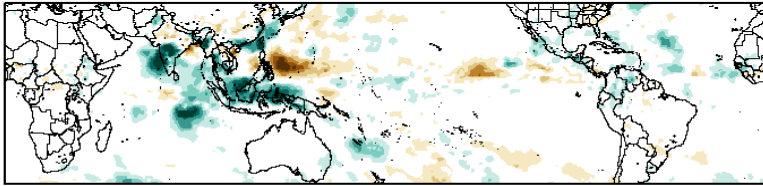
Phase 1



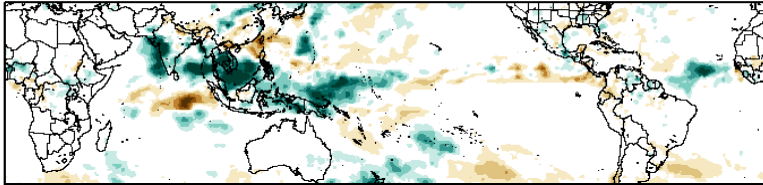
Phase 2



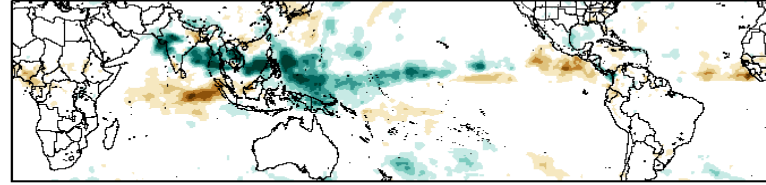
Phase 3



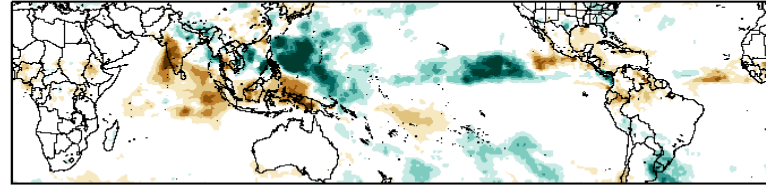
Phase 4



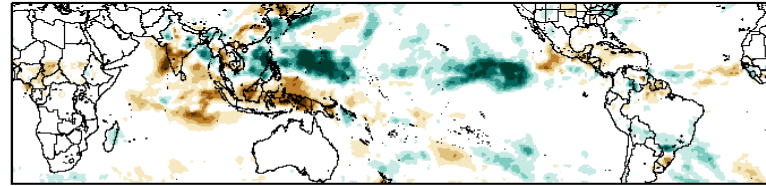
Phase 5



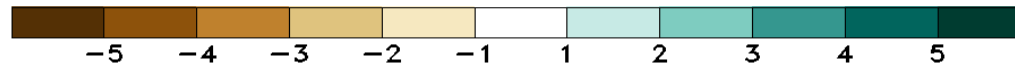
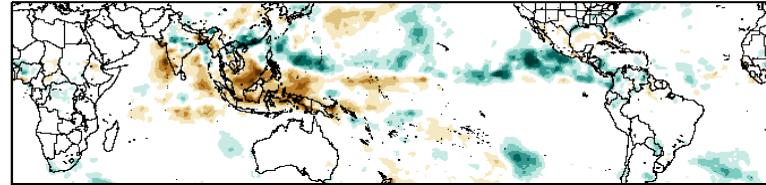
Phase 6



Phase 7

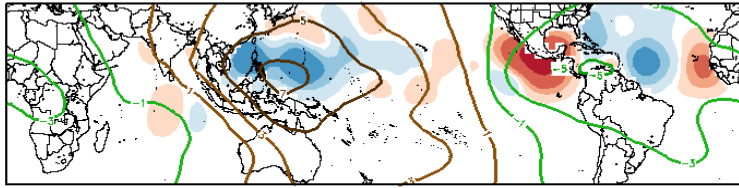


Phase 8

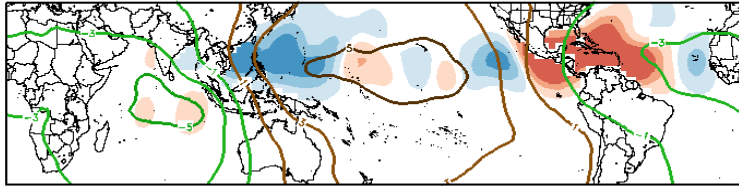


# Historical TC Origin Anomalies By MJO Phase & Weeks 2+3 Genesis Climo:

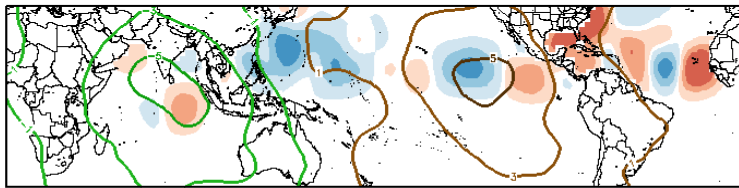
JAS MJO Composite: Mean TC Origin Density Anomaly ( $\#TCs/277km^2*100$ )  
w/ JAS CHI200 ( $\times 10^{-6} m^{-2} s^{-1}$ ) / Contours every  $2 \times 10^{-6} m^{-2} s^{-1}$



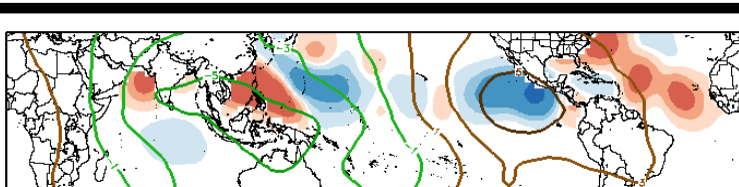
Phase 1



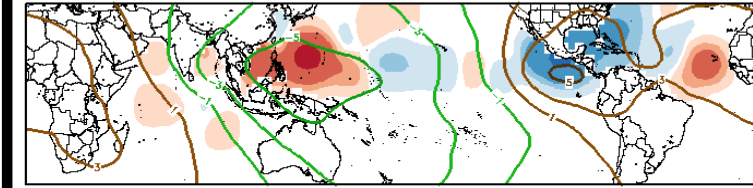
Phase 2



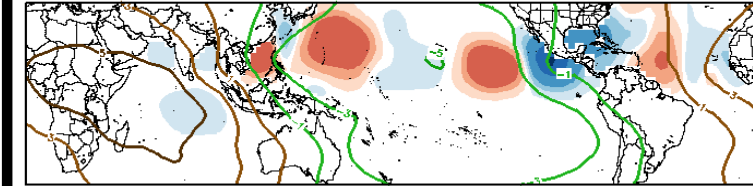
Phase 3



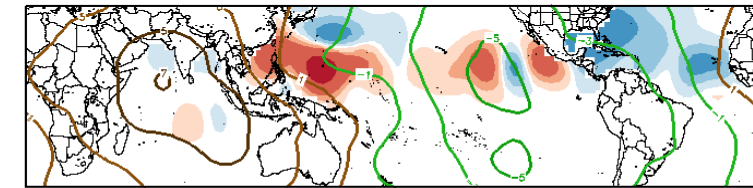
Phase 4



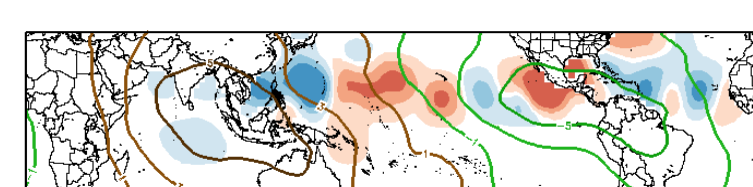
Phase 5



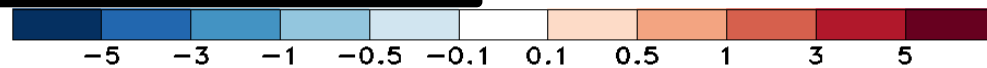
Phase 6



Phase 7

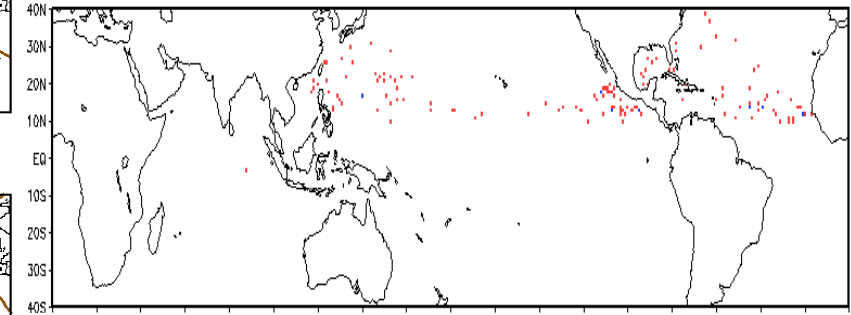


Phase 8



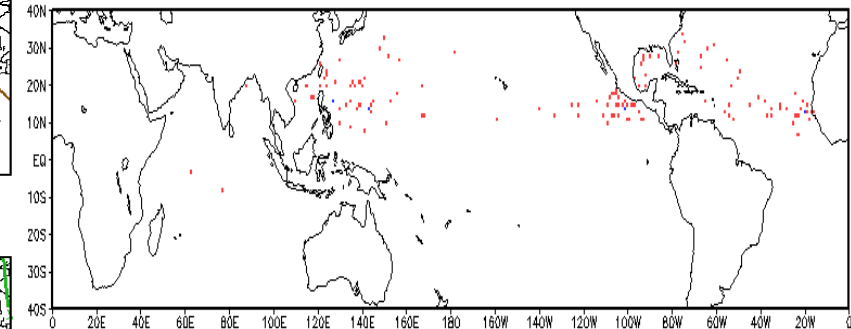
Observed TC Genesis, 1979-2021

7-day Period 0828 to 0903



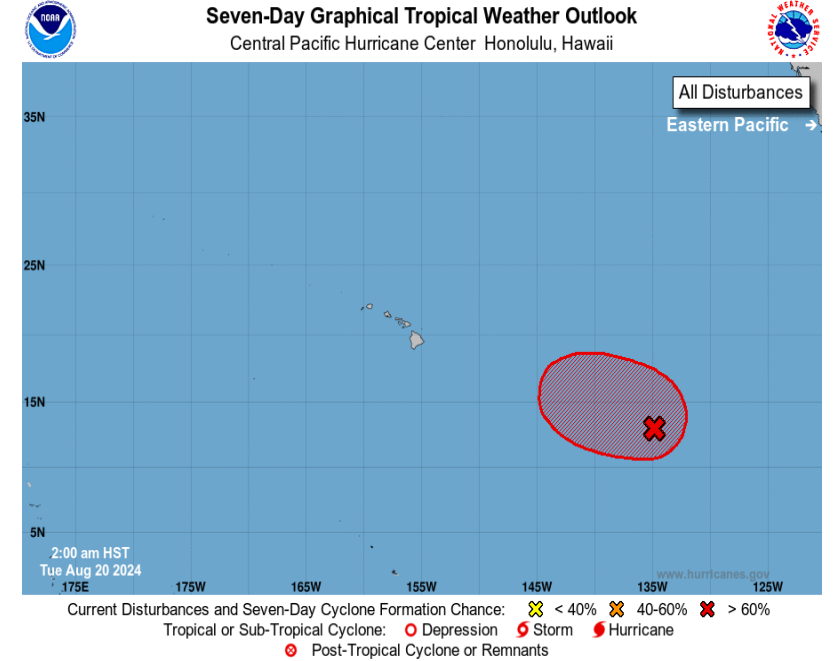
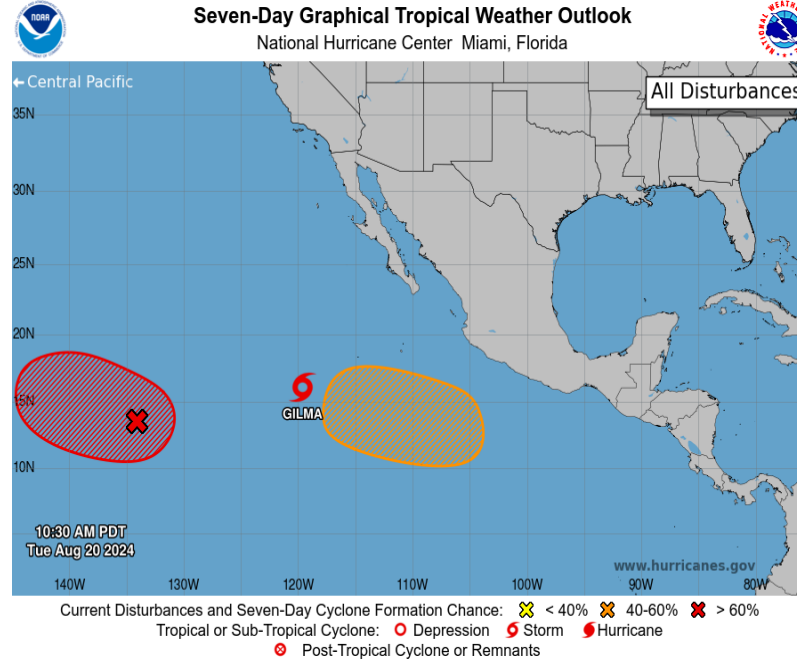
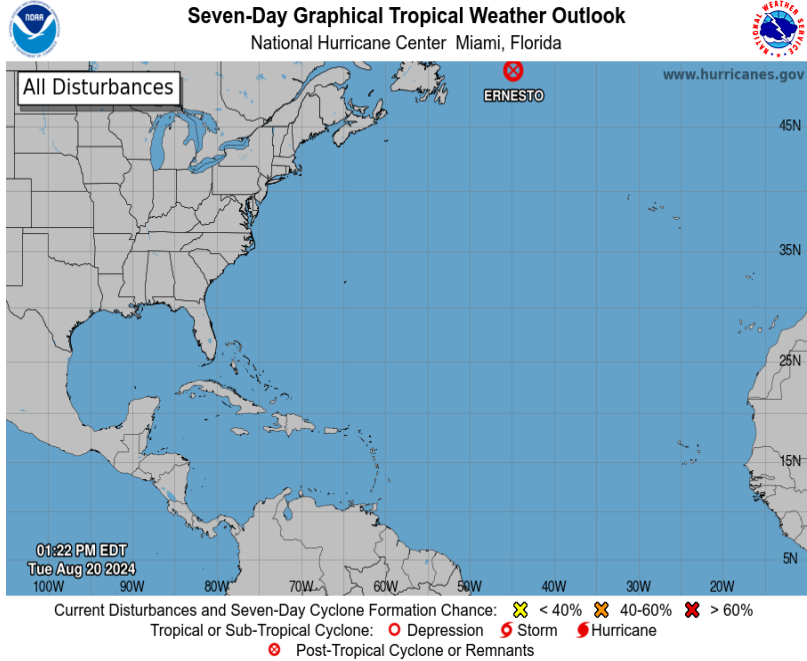
Observed TC Genesis, 1979-2021

7-day Period 0904 to 0910



\*Experimental\*

# Tropical Cyclone Monitoring/Forecast: NHC / CPHC

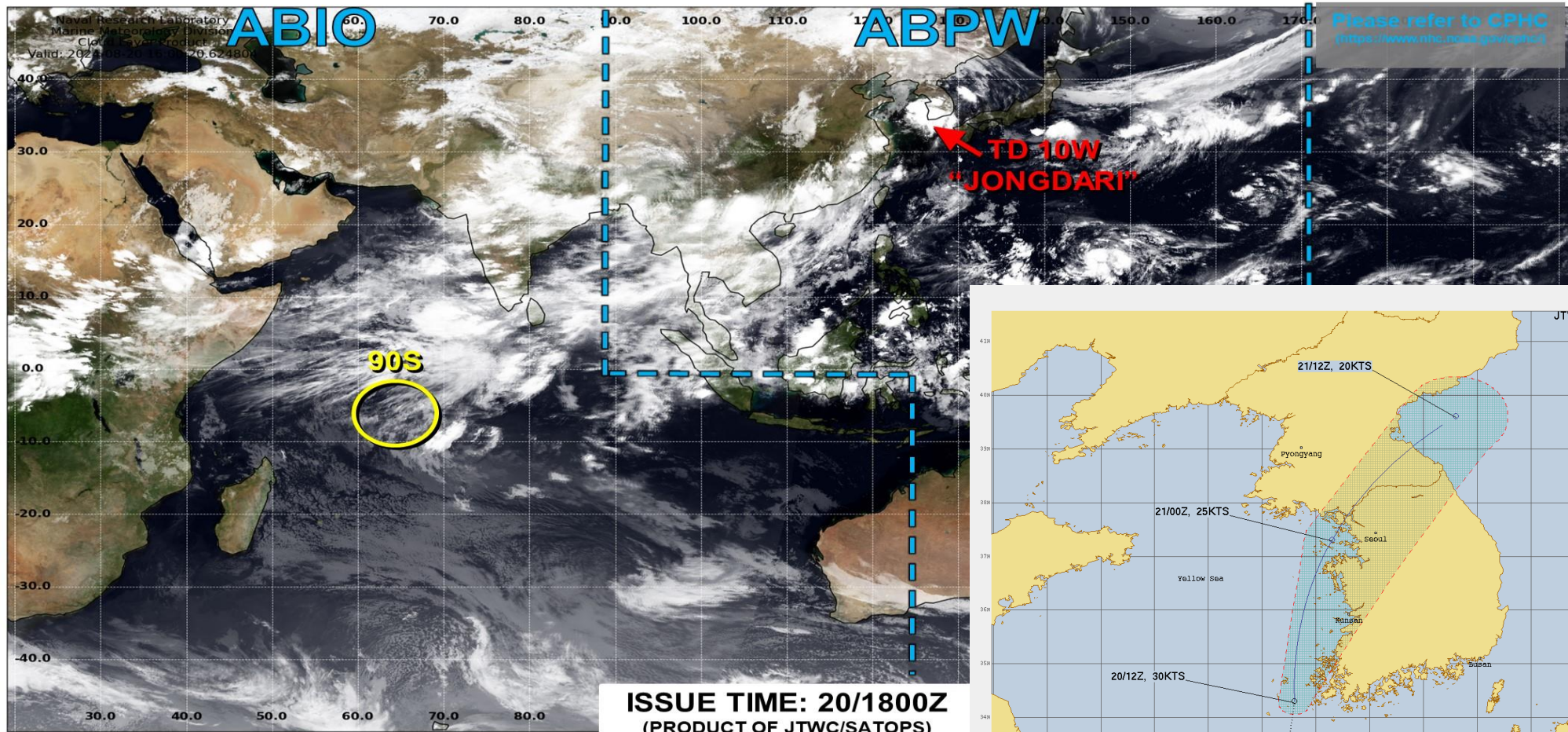




# Tropical Cyclone Monitoring/Forecast: JTWC



## JOINT TYPHOON WARNING CENTER



**LOW**

TC development unlikely within 24 hours

**MEDIUM**

TC development likely, but expected to occur beyond 24 hours

**HIGH**

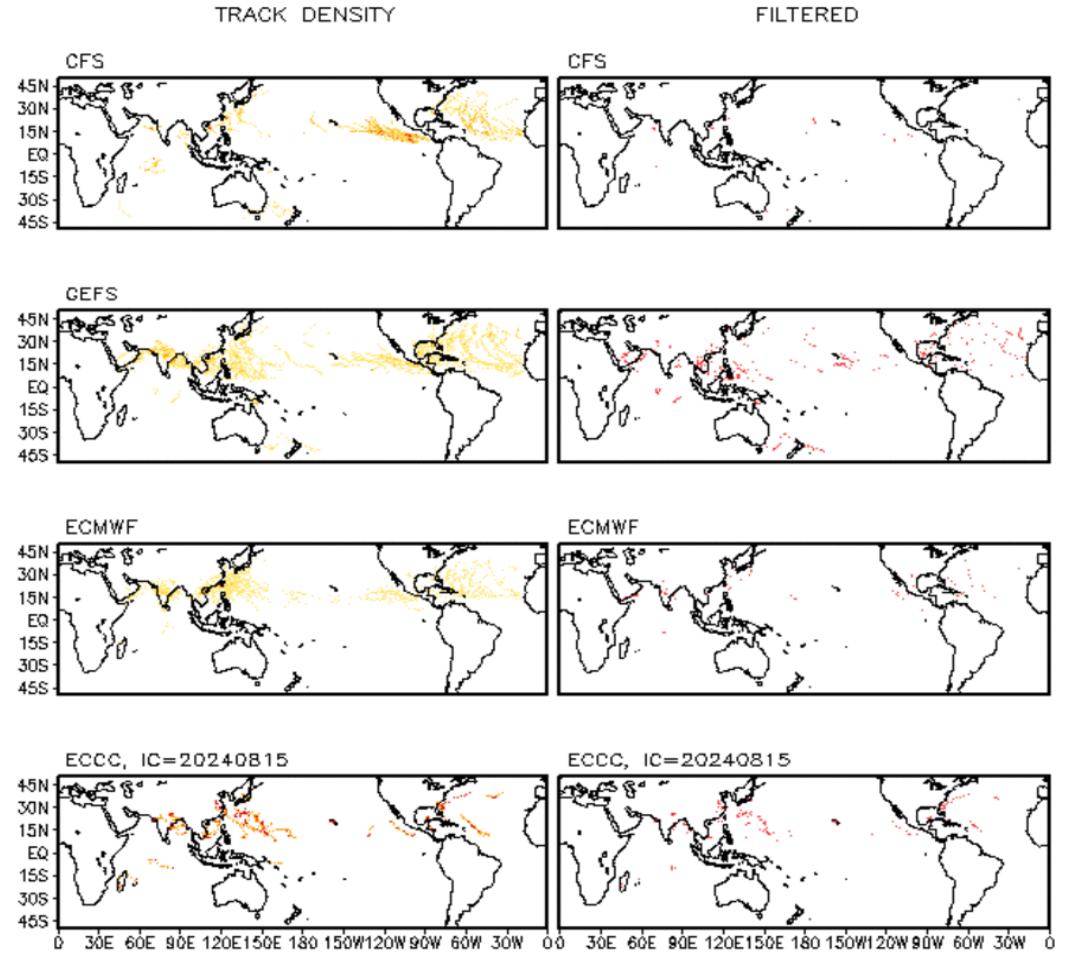
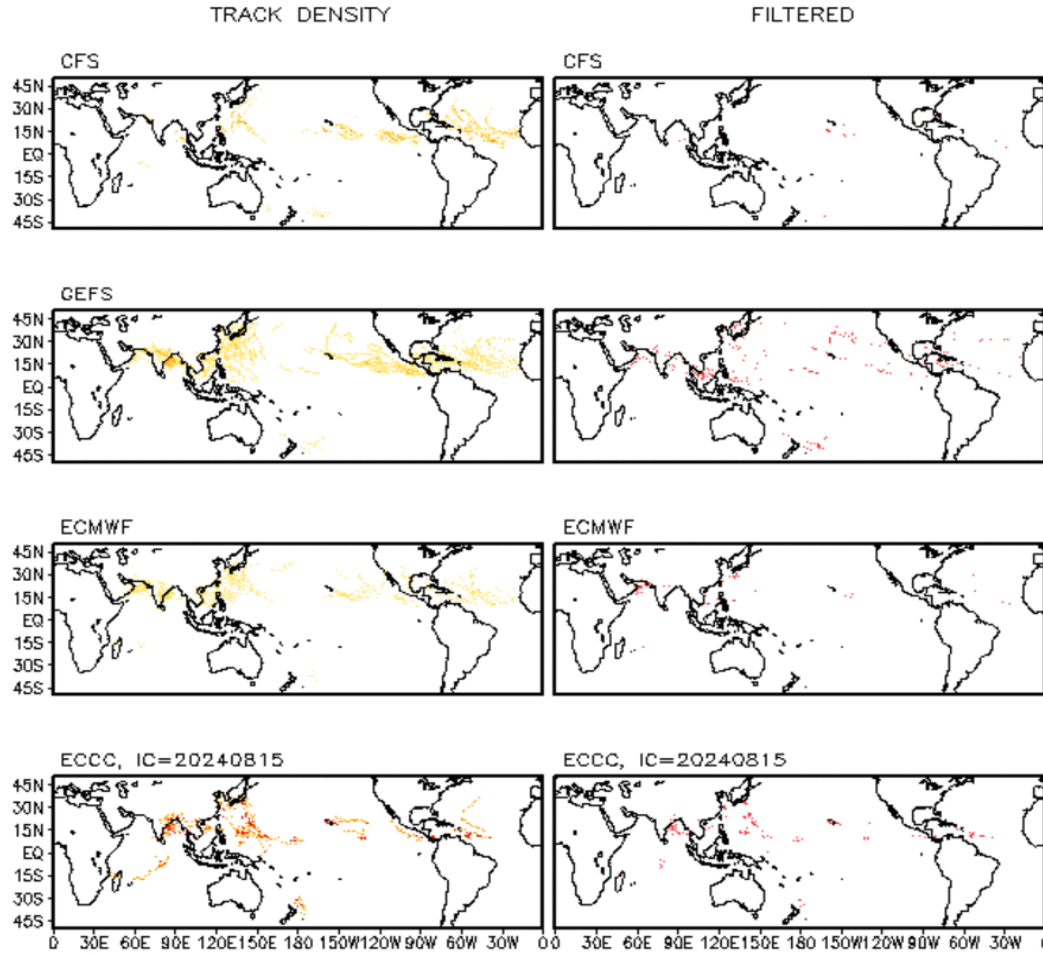
TC development likely within 24 hours (Reference TCFA)



# Multi-Model TC Track Densities: Weeks 2+3

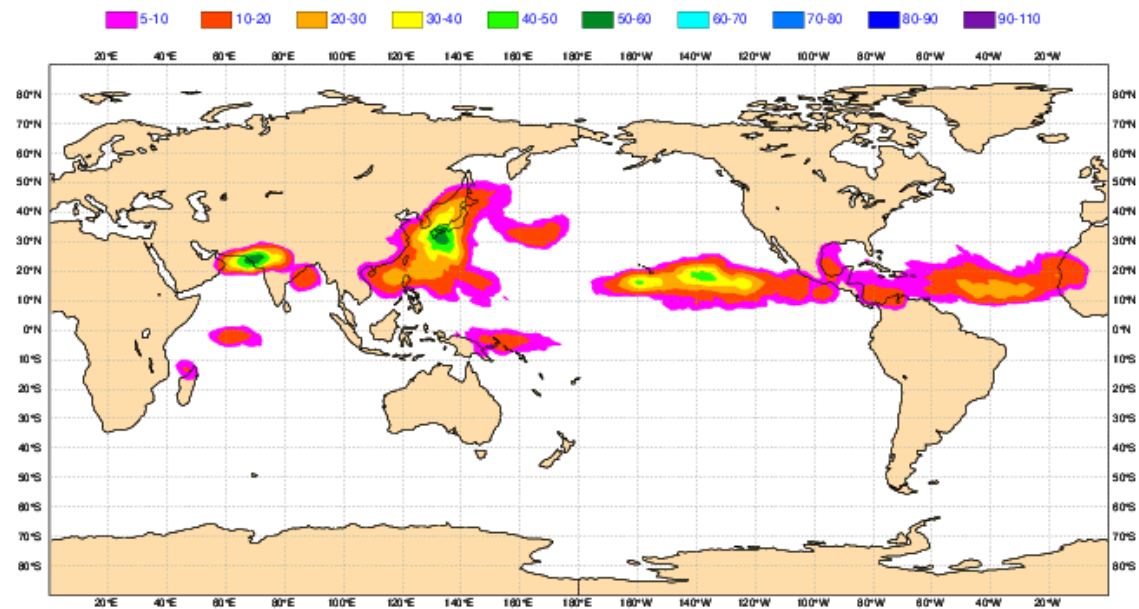
Storm Track Density Distribution, IC=20240819  
Week 2 Forecast: 0828-0903

Storm Track Density Distribution, IC=20240819  
Week 3 Forecast: 0904-0910



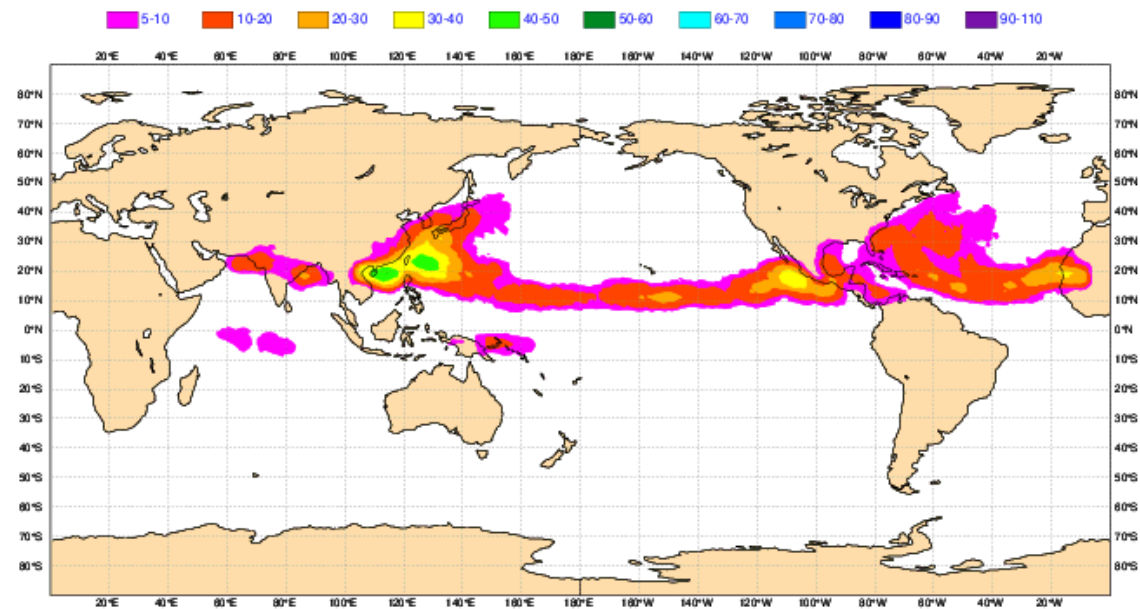
Weekly Mean Tropical Cyclone Strike Probability. Date: 20240819 0 UTC t+(168-336)

Probability of a TC passing within 300km radius



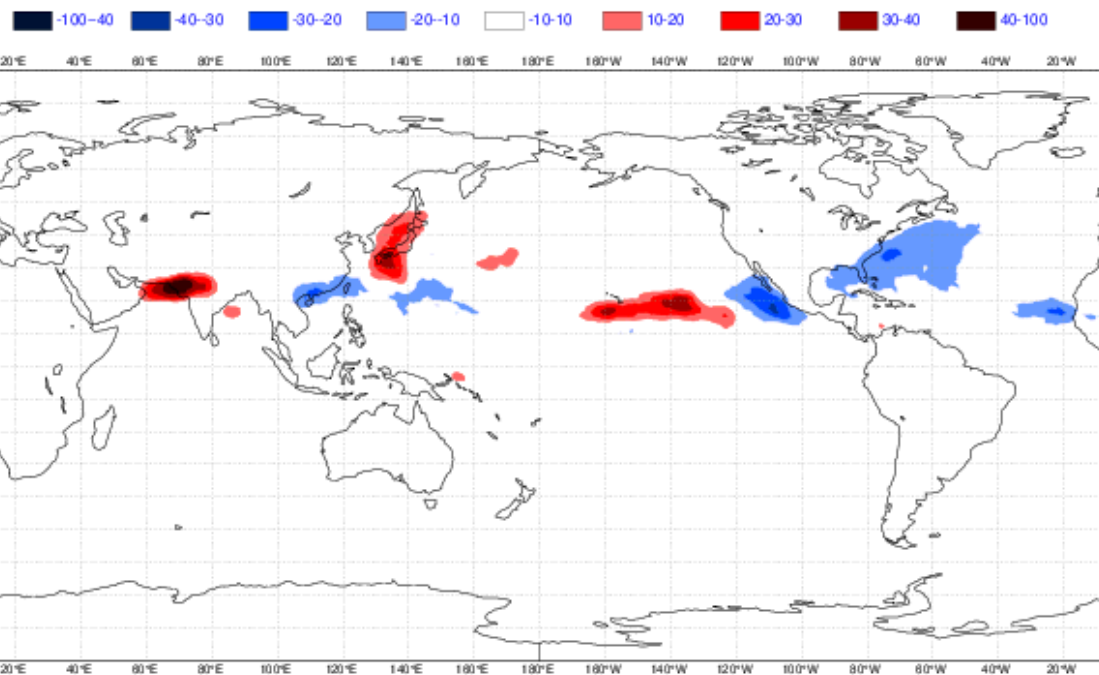
Weekly Mean Tropical Cyclone Strike Probability. Date: 20240819 0 UTC t+(336-504)

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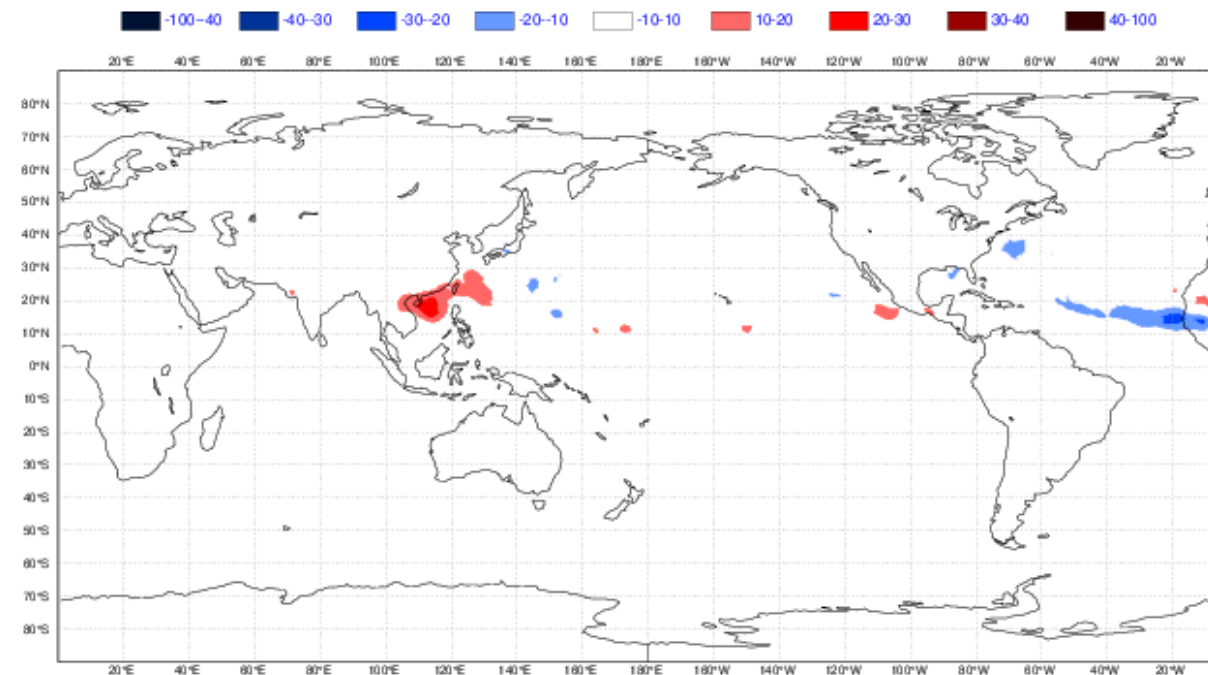
Weekly Mean Anomaly of Tropical Cyclone Strike Probability. Date:20240819 0 UTC t+(168-336)

Probability of a TC passing within 300km radius



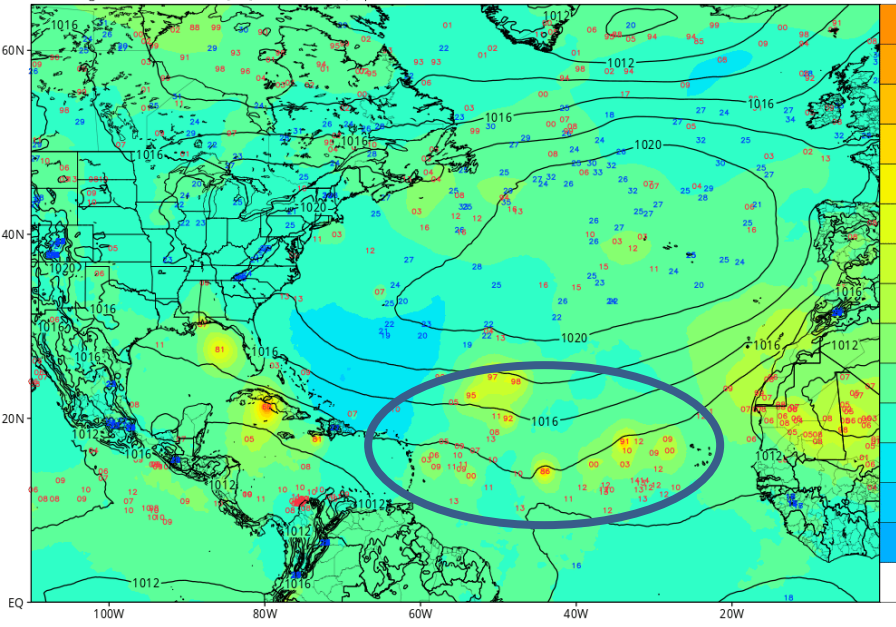
Weekly Mean Anomaly of Tropical Cyclone Strike Probability. Date:20240819 0 UTC t+(336-504)

Probability of a TC passing within 300km radius

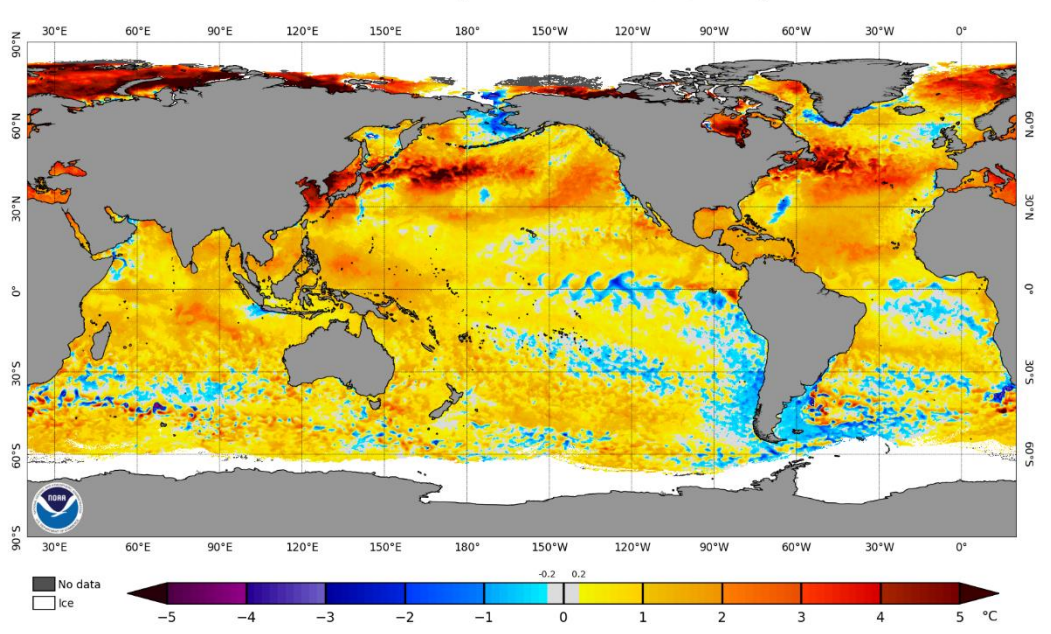




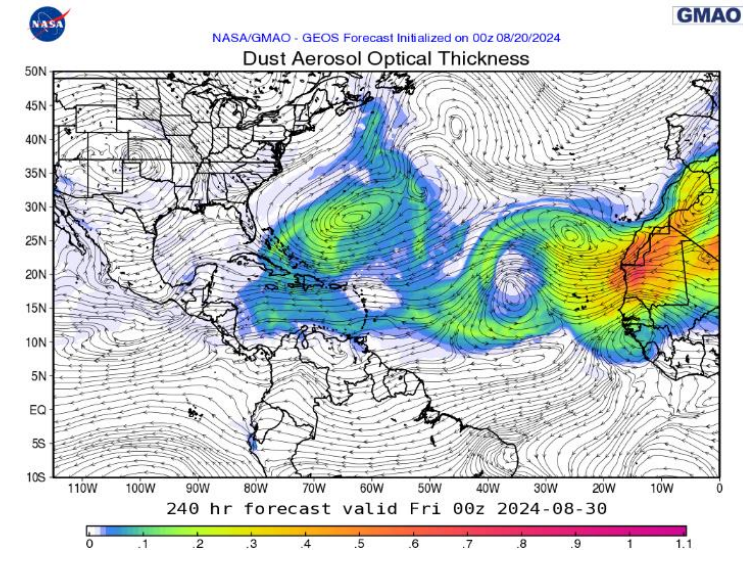
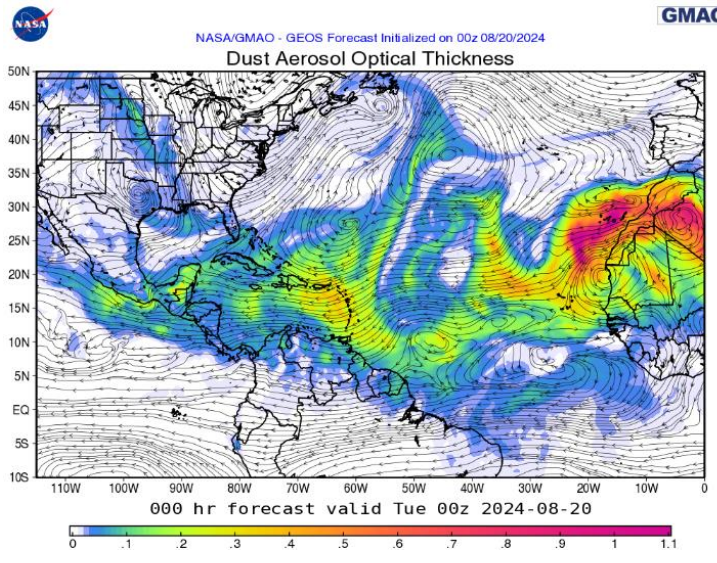
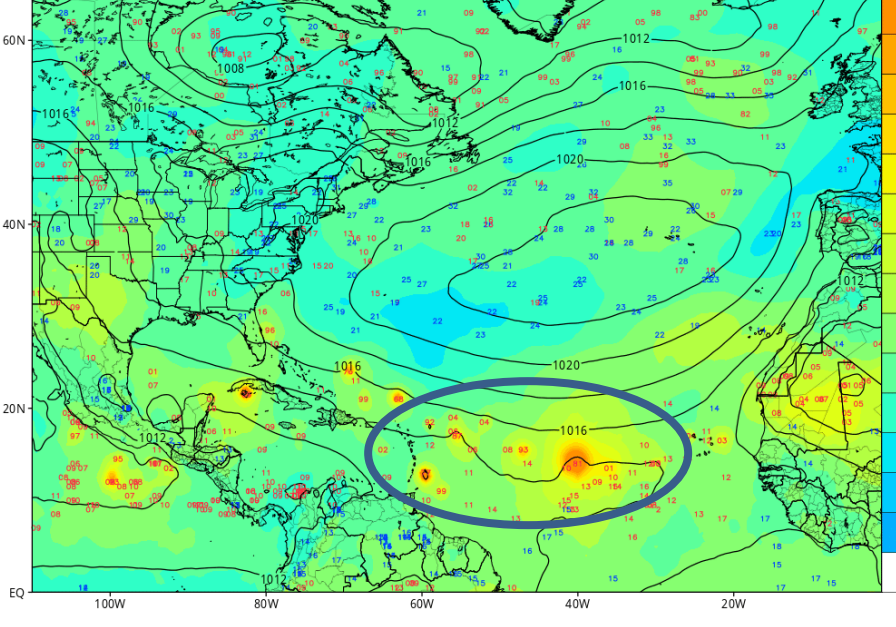
EFPS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | Highs: blue), & Normalized Spread ( $\sigma$ )  
 Init: 00z Aug 20 2024 Forecast Hour: [324] valid at 12z Mon, Sep 02 2024



NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 19 Aug 2024



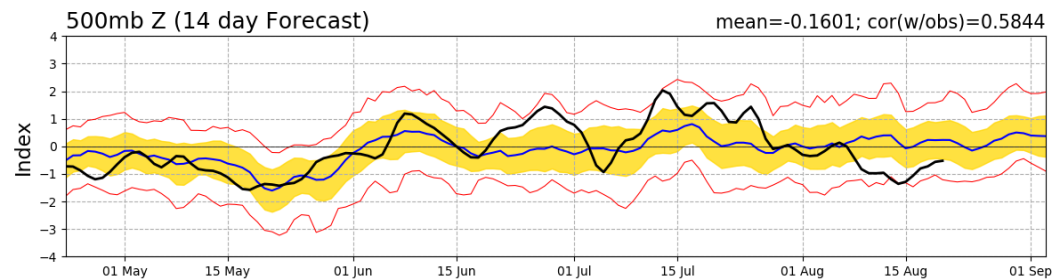
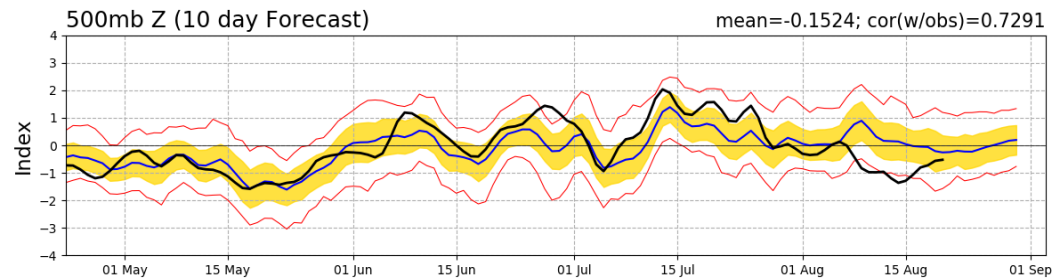
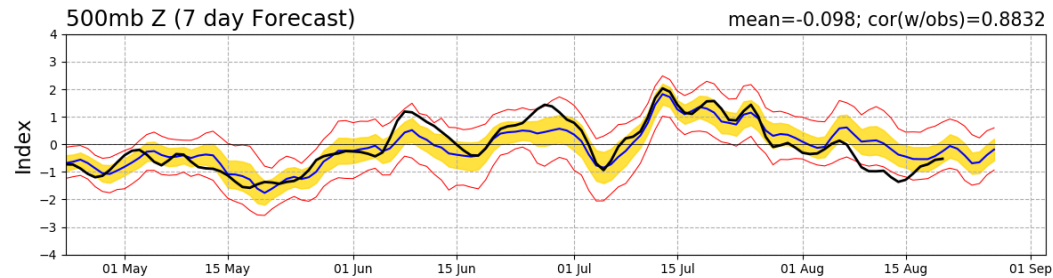
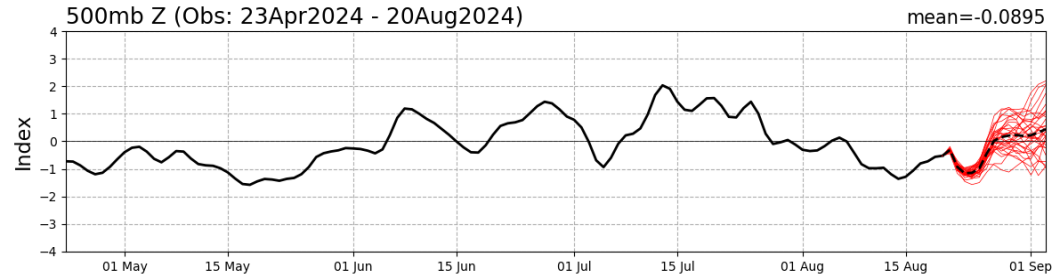
GEFS Mean MSLP (mb), Ensemble Member Pressure Centers (Lows: red | Highs: blue), & Normalized Spread ( $\sigma$ )  
 Init: 12z Aug 20 2024 Forecast Hour: [312] valid at 12z Mon, Sep 02 2024



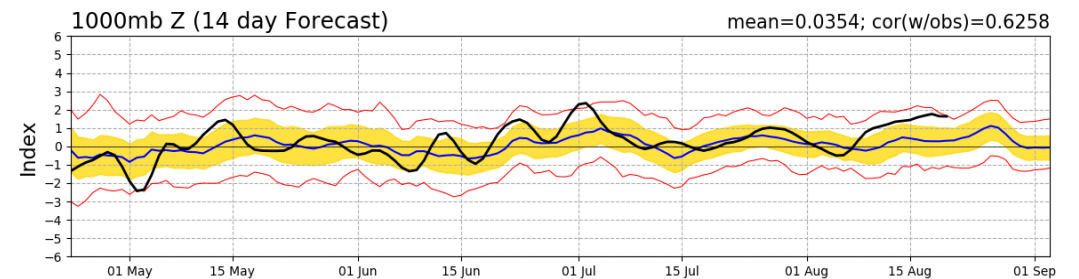
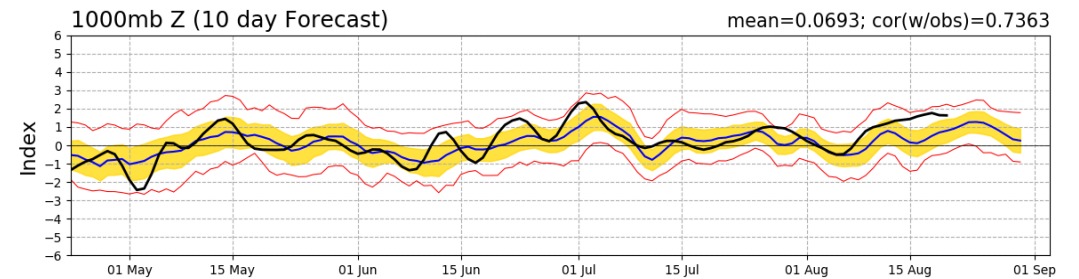
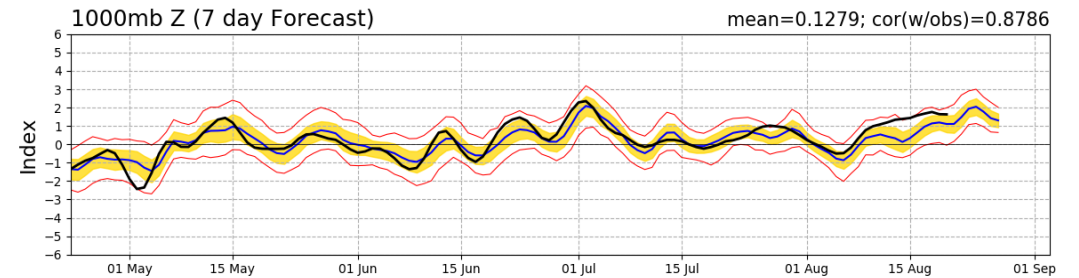
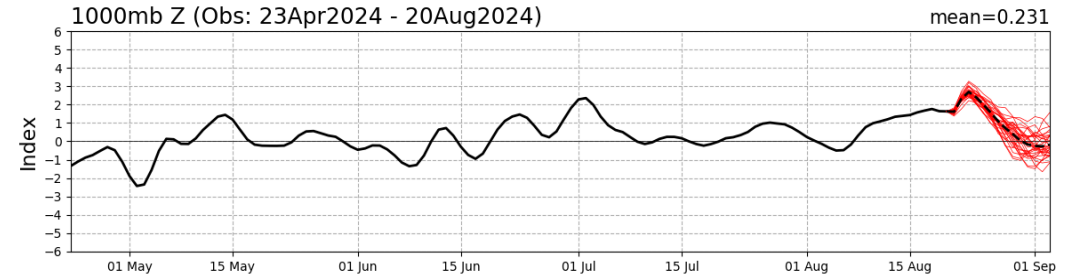


# Teleconnection Indices: PNA / AO:

## PNA Index: Observed & GEFS Forecasts



## AO Index: Observed & GEFS Forecasts

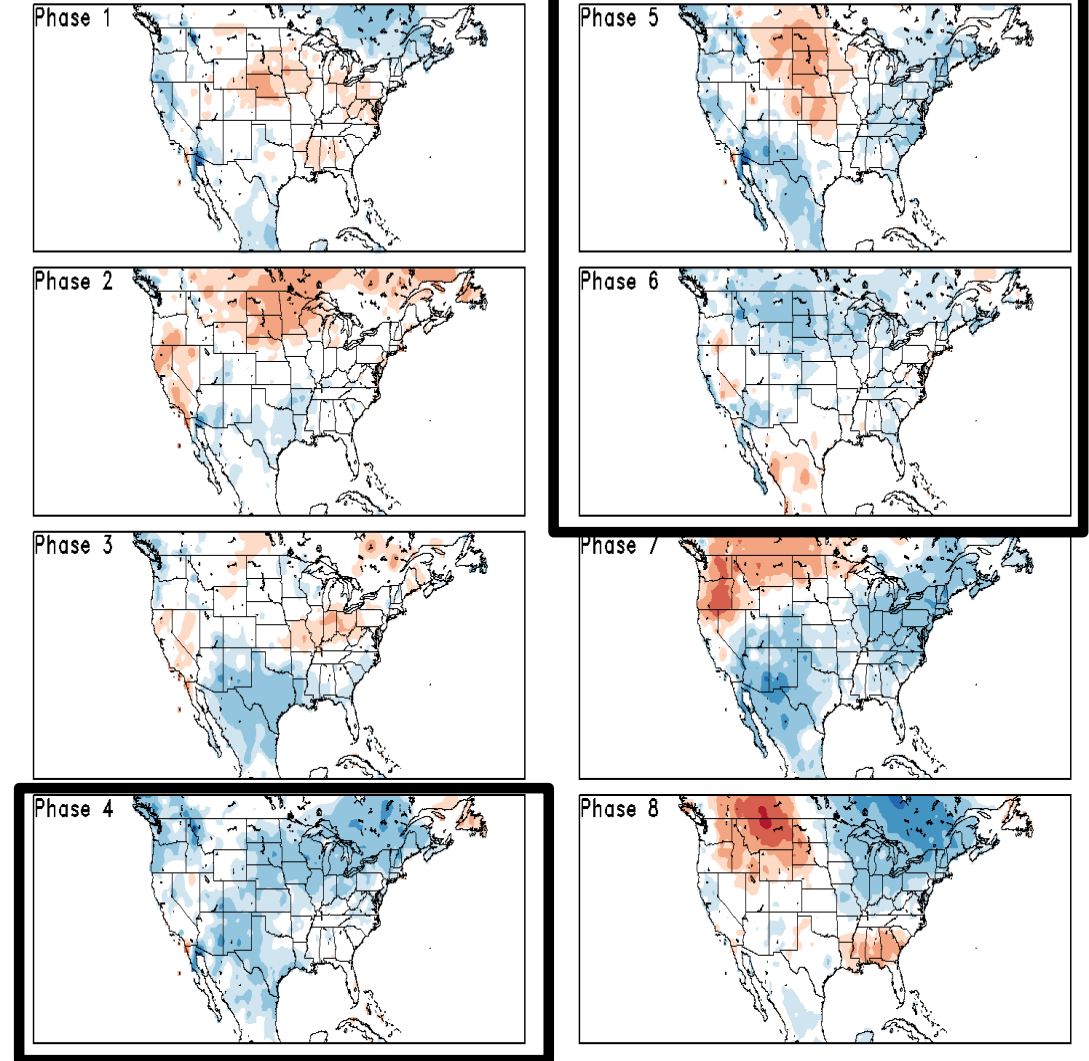
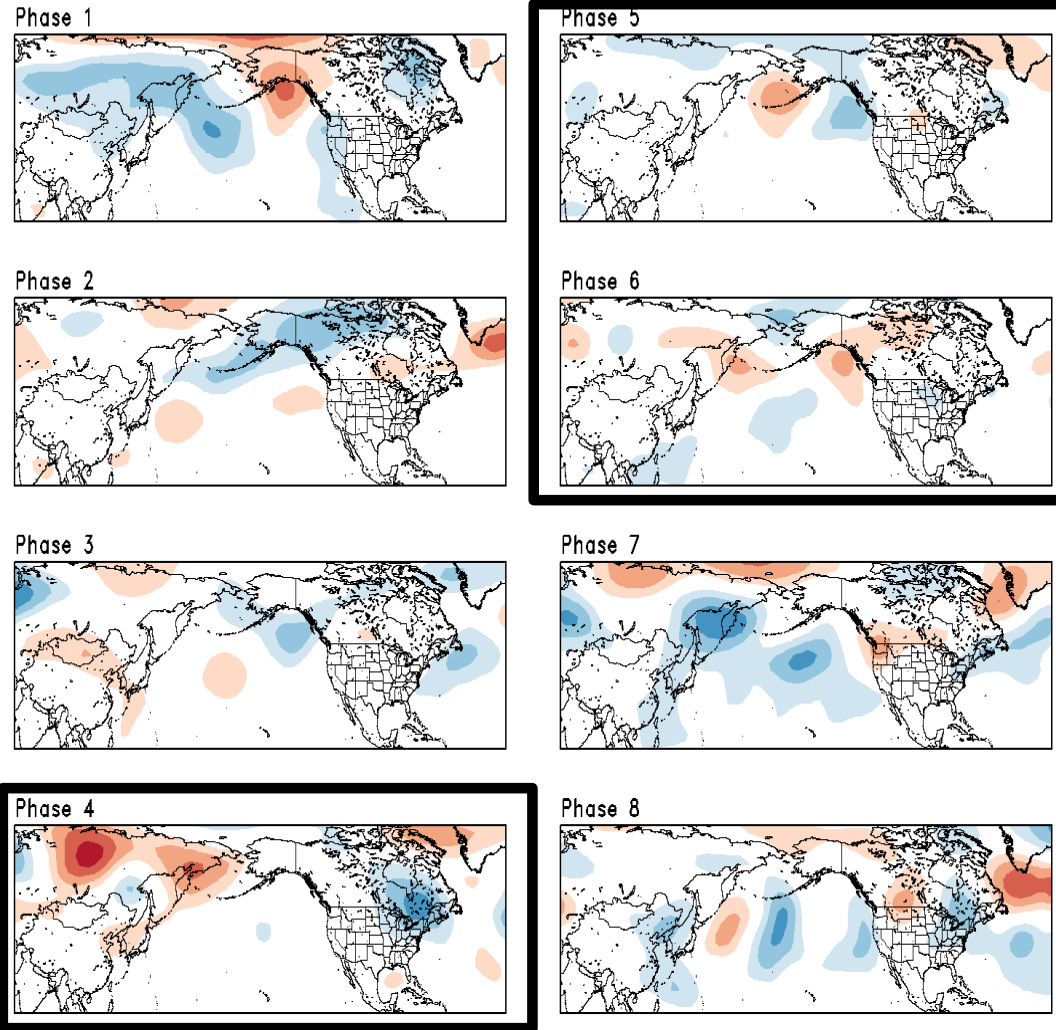




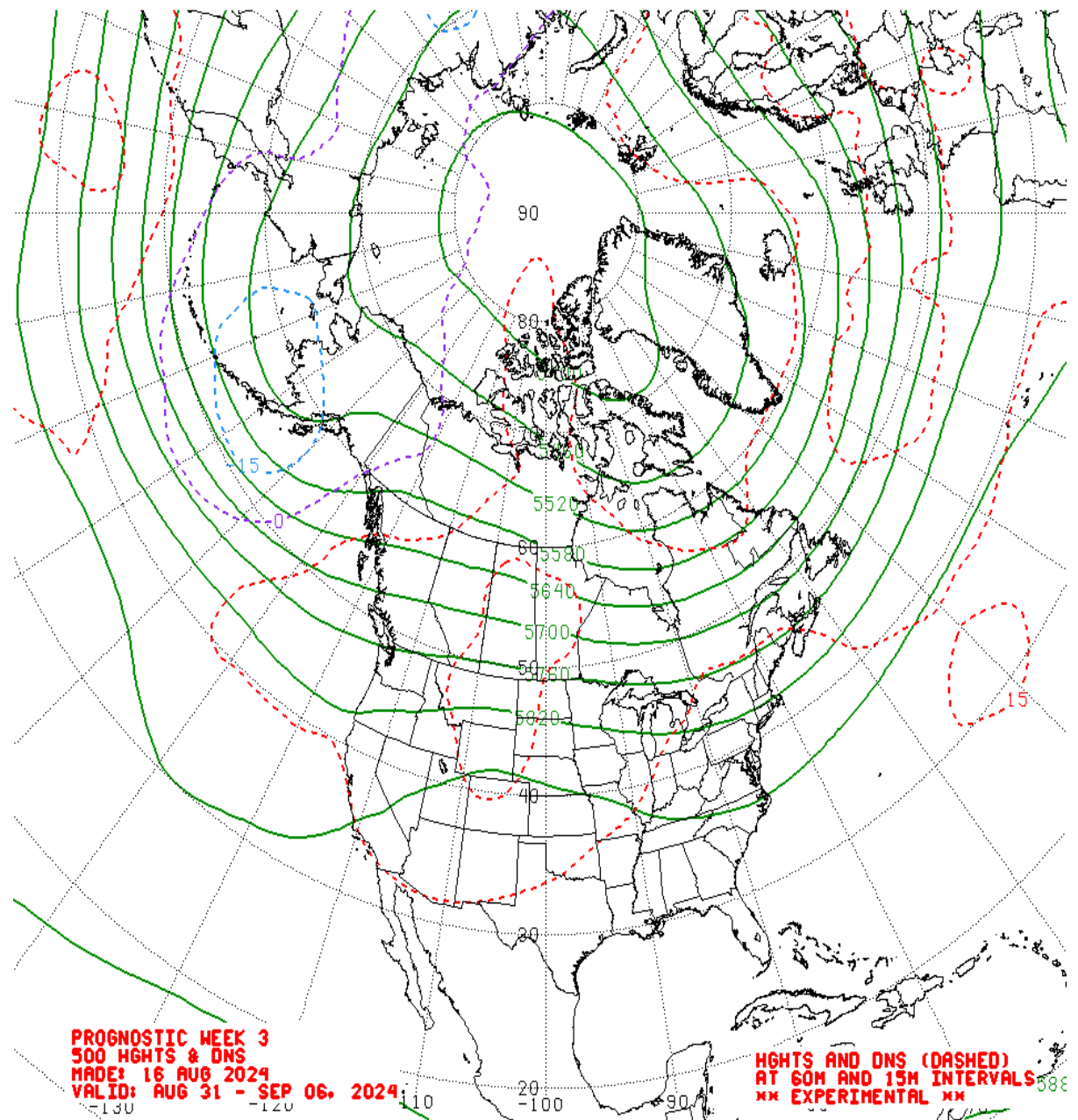
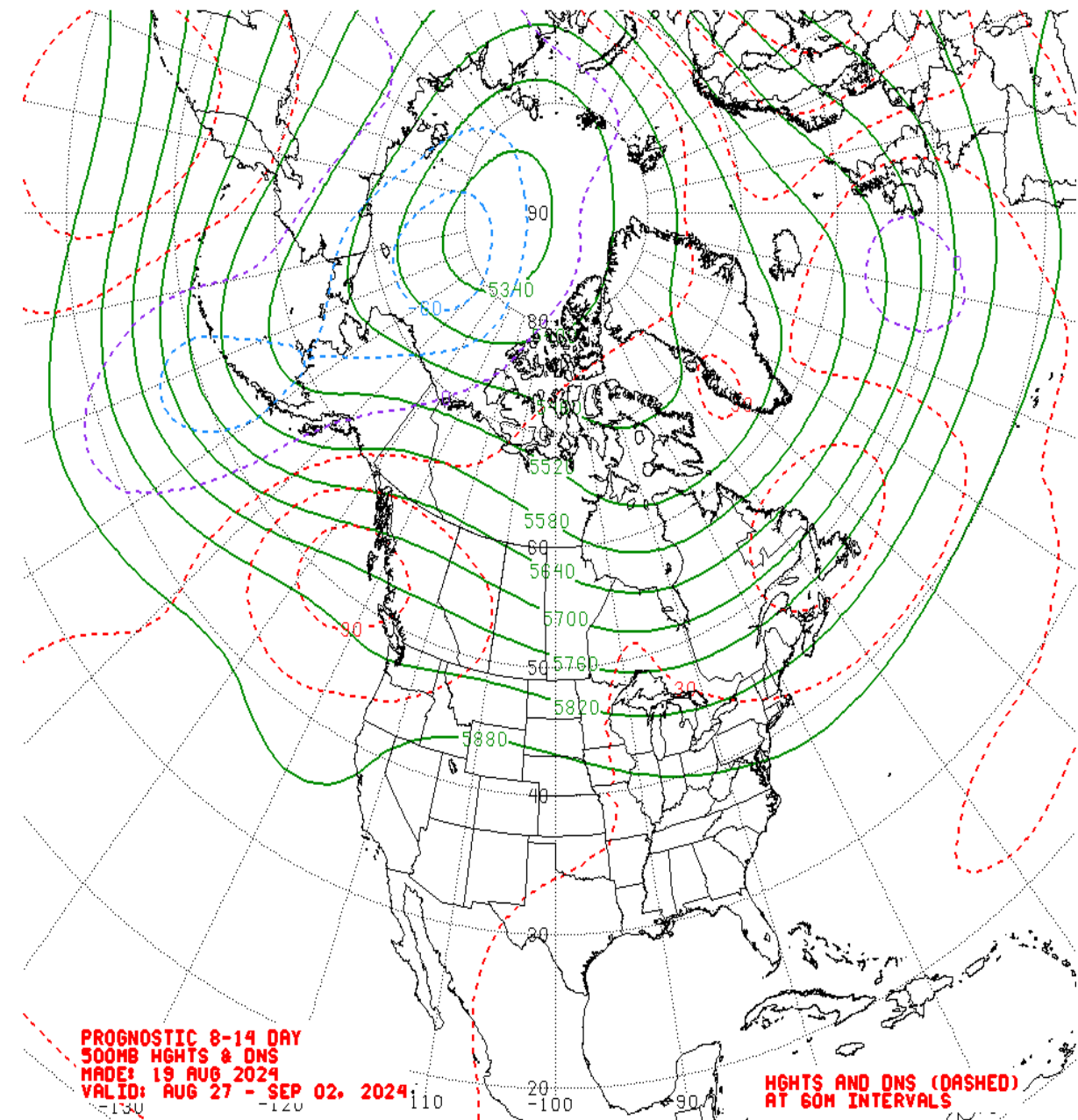
# Historical 500-hPa Height & U.S. Temperatures By MJO Phase:

JAS MJO Composite: CDAS 500-hPa Height (m)

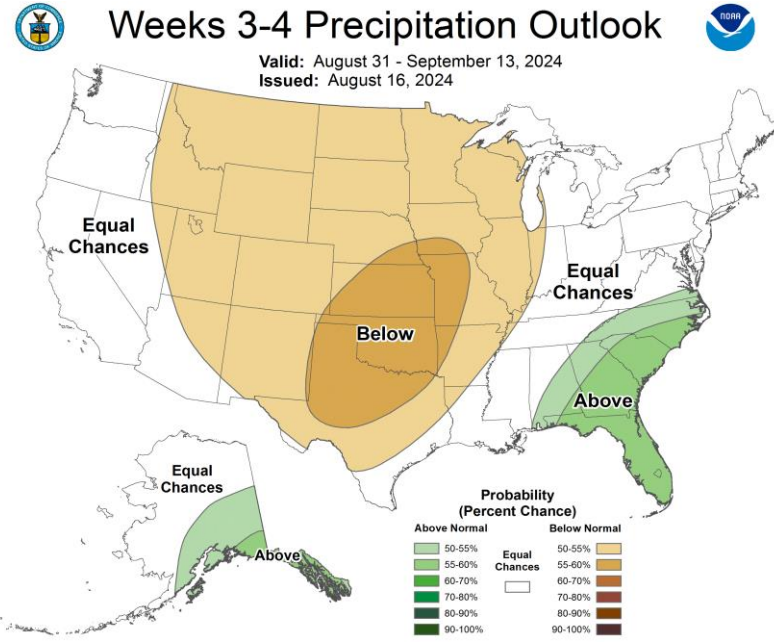
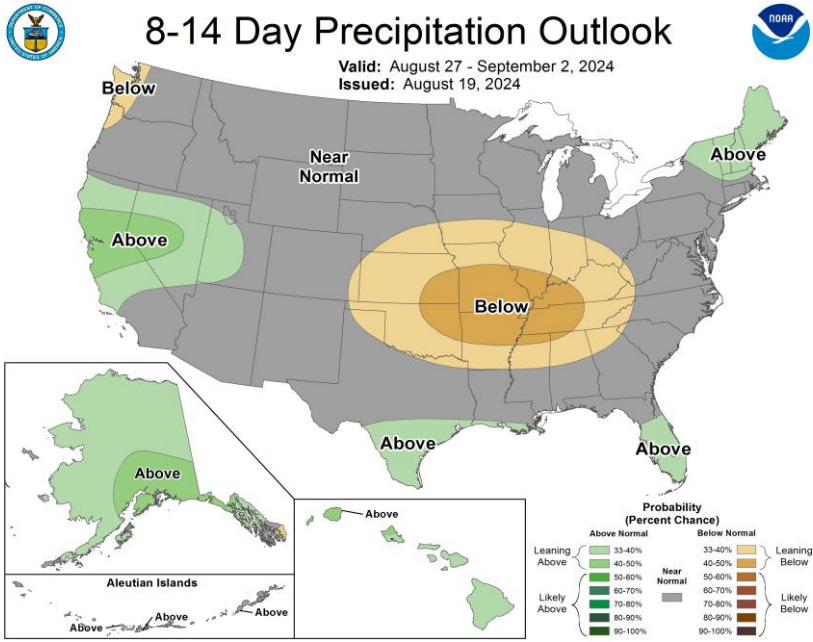
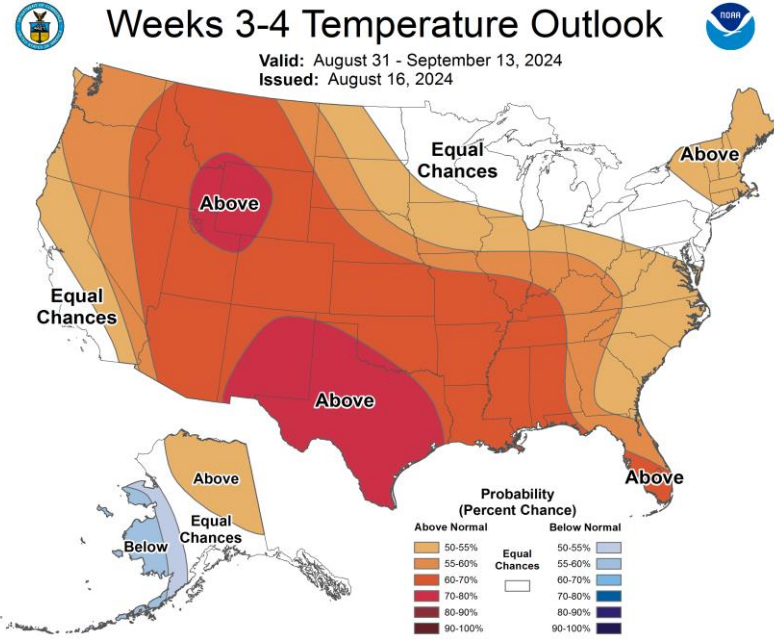
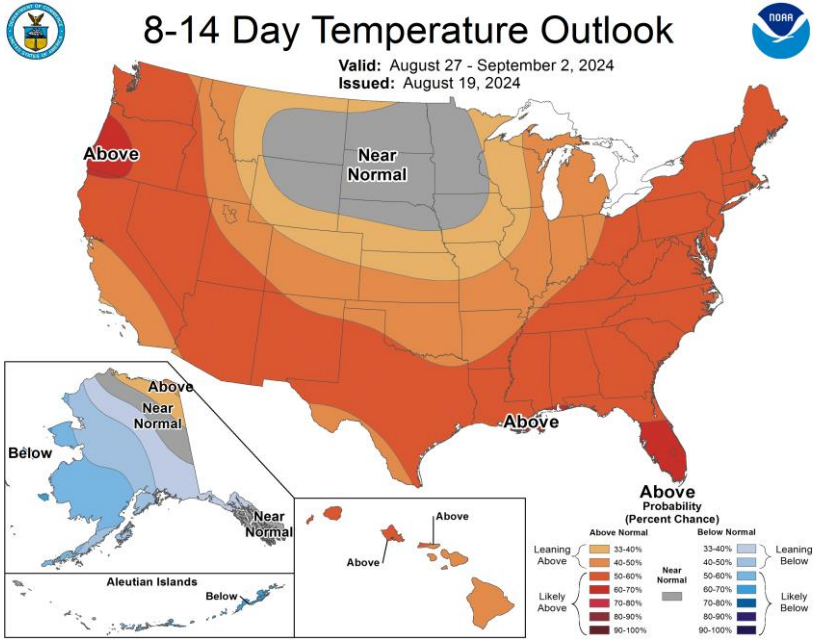
JAS MJO Composite: GLBT (degC)



# Mean 500-hPa Height Anomaly Forecasts: Weeks 2+3



# Official Temperature & Precipitation Forecasts:





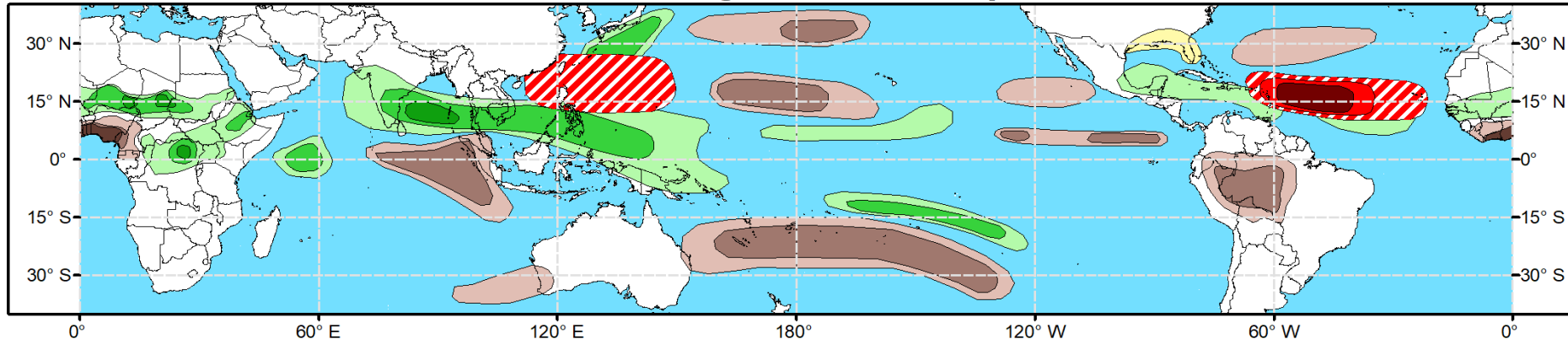


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Climate Prediction Center

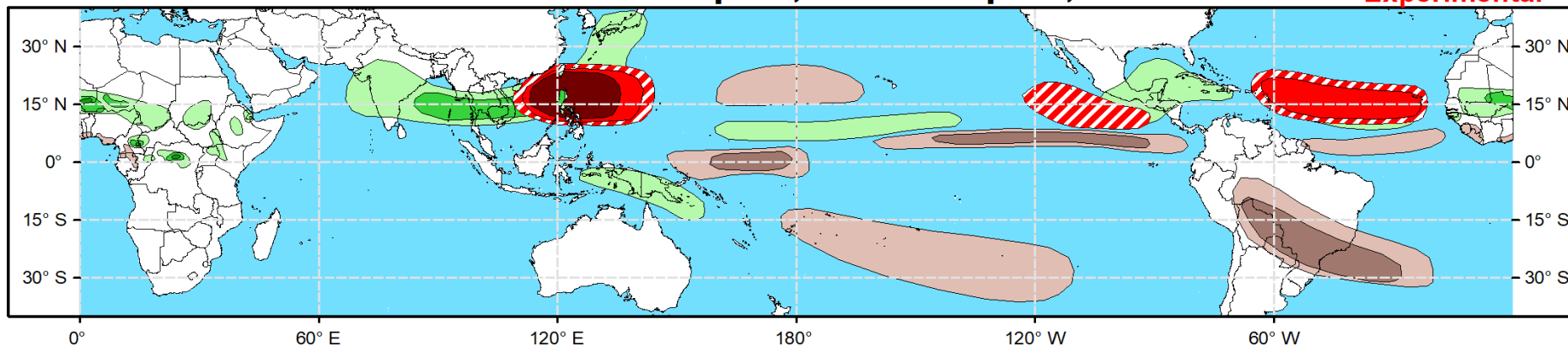


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**Issued: 08/20/2024  
Forecaster: Collow**

**This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only.  
Consult your local responsible forecast agency.**